The Identity of Ceuthophilus guttulosus and its Subspecies (Orthoptera, Gryllacrididae, Rhaphidophorinae)

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In his revision of *Ceuthophilus,* Hubbell (1936: 415) stated, "In 1869 Francis Walker described *Ceuthophilus guttulosus* from an unknown locality. I have not had access to the type, an imperfect female in the British Museum; but consideration of the rather inadequate original description in connection with measurements and sketches (Figs. 364–367) received through the kind coöperation of B. P. Uvarov make it appear not improbable that the species is the same as *nigricans.* Should careful study of the type substantiate this *nigricans* Scudder 1894 will fall as a synonym of *guttulosus* F. Walker 1869." In 1960 Hubbell examined the type of *C. guttulosus* Walker (1869: 203) in the British Museum (Natural History) and confirmed his suspicion that *guttulosus* and *C. nigricans* Scudder (1894: 28, 61) belong to the same species. My own studies, which will be published in detail at a later time, indicate that the entity which Hubbell (1936) called *nigricans* should be divided into two subspecies: *Ceuthophilus guttulosus guttulosus* Walker (new combination) and *C. guttulosus nigricans* Scudder (new combination). *C. neglectus* Scudder (1894: 30, 67), which Blatchley (1920: 622) synonymized under *nigricans,* is a synonym of *g. guttulosus.*

Hubbell (1936: 414) also called attention to specimens from Franklin, Muskingum, Perry, Hocking, Athens, and Vinton counties, Ohio, which appeared intermediate between *Ceuthophilus thomasi* Hubbell (1936: 51, 57, 419) and *nigricans.* He concluded (p. 414), "In view of the uncertainties involved, and the absolute distinction between the two types elsewhere than in this area, *thomasi* and *nigricans* are here treated as distinct species." As a result of additional collecting which has provided intermediate specimens from Ontario, Quebec, Indiana, West

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Virginia, Virginia, and North Carolina as well as Ohio, it is now apparent that *thomasi* and *nigricans* (as defined by Hubbell) intergrade wherever they come in contact with each other and that the former should be known as *Ceuthophilus guttulosus thomasi* (new combination). The species, *C. guttulosus,* corresponds to the entity which Hubbell (1936) called the "Nigricans Group."

Still another taxonomic change was foreseen by Hubbell (1936; 422), who stated, "It may prove necessary to recognize a southern mountain race and a northern interior lowland race of *thomasi,* since southern specimens show a strong tendency toward greater prolongation of the dorsal portions of the abdominal tergites and more accentuated carination of the abdomen." Examination of southern specimens indicates that they may also be distinguished by a higher length-of-caudal-tibia to length-of-caudal-femur ratio and by a greater number of spinulose denticulations on the ventrocephalic carina of the caudal femur in relation to the length of the caudal femur. The name *thomasi* should be restricted to the northern interior lowland race, and the southern mountain race is here described as a new subspecies of *Ceuthophilus guttulosus.* Key characters separating the four subspecies of *guttulosus* are shown in Table 1.

Ceuthophilus guttulosus angulosus [2] new subspecies

Diagnosis.—Specimens of *Ceuthophilus guttulosus* which resemble *C. g. thomasi* but differ in the greater median carination, angulation, and prolongation of the abdominal terga and in the higher length-of-caudal-tibia to length-of-caudal-femur ratio.

Holotype.—Male; Cliffside Recreation Area, 4.4 miles west of Highlands, Macon County, North Carolina; 3,000 feet; September 7, 1952; T. H. Hubbell; University of Michigan Museum of Zoology.

Similar to *thomasi* except as noted in Table 1. Size small, length of body 11.3 (all measurements in millimeters), length of pronotum 3.2; slender for the species. Head with eyes

[2] *Angulosus,* having many angles, in allusion to the median angulation of most of the abdominal terga.

TABLE 1. *Key characters for distinguishing subspecies of Ceuthophilus guttulosus*

(Figure references in Hubbell, 1936)

	guttulosus	*nigricans*	*thomasi*	*angulosus* n. subsp.
Male subgenital plate	scoop-shaped (Figs. 557–9, 763–5)	scoop-shaped	conical, cleft (Figs. 766–7)	conical, cleft (Figs. 560, 768–9)
Number of abdominal terga with at least slight median angulation				
in male	1 to 4(5)	(3)4 to 6(7)	(2)4 to 7	(6)7 to 8
in female	1 to 3	2 to 4(5)	(1)2 to 5(6)	5 or 6
Production of male eighth tergum	slight to moderate (Fig. 618)	moderate	moderate to strong (Fig. 619)	strong to very strong (Figs. 620–1)
Pale area on lower part of lateral lobe of pronotum	broad or occasionally narrow	absent	absent or sometimes narrow	absent
Teeth on ventral ovipositor valve	normally 5	usually 6	normally 5	normally 5
Distribution	southern Que. U. S. from eastern Ohio and W. Va. eastward, and Putnam Co. Ind.	northeastern Ky.	southern Ont., lower peninsula of Mich., Ind., and western Ohio	Macon Co., N C. and Rabun Co., Ga.

prominent, length of eyes 0.83, breadth of eyes 0.70, interocular distance 1.01, infraocular distance 1.01; antennal length roughly 22; length of distal segment of maxillary palp 1.54; length of clypeal suture 1.47. Cephalic coxa with lateral carina produced in an acute spine; cephalic femur 4.1 mm long, with 1 (left side) or 2 (right side) spurs on ventrocaudal carina; cephalic tibia 3.9 mm long, with 3 spurs on ventrocephalic carina, 3 (right side) or 4 (left side) spurs on ventrocaudal carina, and 2 distal spurs on each side; middle femur 4.0 mm long, with 2 (left side) or 3 (right side) spurs on ventrocephalic carina and 1 spur on caudal genicular lobe; middle tibia 4.1 mm long, with 2 dorsal, 2 distal, and 3 ventral spurs on each side; caudal femur 8.3 mm long, maximum breadth 2.7, with 19 (left side) or 23 (right side) spinulose denticulations on ventrocephalic carina; caudal tibia 9.8 mm long, 0.39 mm deep, spine formula (as defined by Hubbell, 1936: 17) of cephalic carina 10/5/4–5/4/2, with 1 subdistal ventral spur, length of subdistal spur of cephalic carina

0.64, of dorsocephalic calcar 1.23, of dorsocaudal calcar 1.48; length of caudal tarsus 4.1, of metatarsus 2.15, of 2nd segment 0.81, of 4th segment 1.16, of claw 0.53, depth of 2nd segment 0.39, abdomen laterally compressed, tectate, a median carina present on distal half of each tergum and faintly indicated on metanotum and mesonotum; median angulation absent on 1st tergum, weak on 2nd, obtuse on 3rd through 5th, 70° on 6th, 60° on 7th, 8th with projection bulbous and with sides at one point subparallel, immediate apex right angulate; apices of 3rd through 8th terga raised above succeeding terga; dorsal outlines of 5th through 7th terga weakly concave in lateral view, of 8th strongly concave. Subgenital plate conical, lateral margins straight, with a deep median cleft, the paired lobes pressed tightly together and with apices asymmetrically rounded, more narrowly rounded toward the median line; pseudosternite normal for the species, with dorsocaudal lobes connected as a continuous transverse ridge which is only slightly weaker mesally. Middorsal stripe broad and strongly contrasted on thorax, somewhat narrowed near margins of nota; background color now dark brown but probably black prior to storage in alcohol; dark area of nota extending all the way to ventral margins.

Allotype.—Female; same data as holotype.

Similar to *thomasi* except as noted in Table 1. Length of body 13.6, of pronotum 3.6, of caudal femur 9.0, of caudal tibia 10.6, of ovipositor 5.2 Median femur with 1 (left side) or 3 (right side) spurs on ventrocephalic carina and 1 spur on caudal genicular lobe, caudal femur with 21 (left side) or 24 (right side) spinulose denticulations on ventrocephalic carina; ventral ovipositor valve with 5 teeth (including apical hook). Third through 8th abdominal terga with median angulation and with apices raised above succeeding terga. Coloration as in holotype.

Specimens examined.—(All in the University of Michigan Museum of Zoology unless otherwise stated.) TYPICAL MATERIAL: Cliffside Recreation Area, 4.4 miles W of Highlands, Macon Co., N. C., 3,000 ft; Sept. 7, 1952; T. H. Hubbell and I. J. Cantrall; 48 ♂, 42 ♀ (holotype, allotype, and paratypes). Highlands, Macon Co., N. C.; July 28, 1947; J. J. Friauf; 1 ♀

(paratype), 1 juv. ATYPICAL MATERIAL (not considered paratypic): Summit Walker Mt., Bland-Wythe Co. line, Va., 3,950 ft; Sept. 2, 1952; T. H. Hubbell, I. J. Cantrall, and S. K. Gangwere; 2 ♂, 3 ♀. 12.6 miles S of Wytheville on U. S. Hwy. 21, Wythe Co., Va.; Sept. 3, 1952; T. H. Hubbell, I. J. Cantrall, and S. K. Gangwere; 1 ♀. Abingdon, Whitetop Mt., Washington Co., Va., 5,400–5,500 ft; Sept. 9, 1933; J. R. Bailey; 2 ♂.[3] Whitetop Mt., Grayson Co., Va., 5,100–5,400 ft; Aug. 6–7, 1946; T. H. Hubbell; 3 ♂, 4 ♀. Along Little River, 7 miles NE of Sparta; Alleghany Co., N. C.; June 20, 1953; J. R. and R. M. Bailey; 1 ♂, 3 ♀. Pineola State Fish Hatchery, Avery Co., N. C., about 3,500 ft; Sept. 3, 1952; T. H. Hubbell, I. J. Cantrall, and S. K. Gangwere; 1 ♂. Hot Springs, Madison Co., N. C.; July 30, 1936; J. R. Bailey; 1 ♂. Mt. Sterling, Haywood Co., N. C., 4,900 ft; Aug. 1, 1924; T. H. Hubbell; 4 ♂, 1 ♀.[3] Walnut Bottom, Great Smoky Mts. Nat'l Park, near Mt. Sterling, Haywood Co., N. C., about 3,000 ft; June 24, 1938; W. B. Jones; 1 ♀; Ala. Mus. Nat. Hist. Mt. Sterling, Haywood Co., N. C.; Sept., 1938; Chambers; 3 ♀. Swannanoa, Buncombe Co., N. C., 3,000–4,000 ft; Sept. 2, 1933; C. F. Walker; 2 ♂;[3] Ohio State Mus. High Hickory Mt., 1 mile SW of Swannanoa, Buncombe Co., N. C., 2,500–3,000 ft; J. R. Bailey; Aug. 11, 1933, 1 ♂, 1 ♀;[3] Aug. 21, 1933, 1 ♂;[3] Sept. 2, 1933, 1 ♀.[3] Lake Toxaway, Tranyslvania Co., N. C., about 3,200 ft; Sept. 8, 1952; T. H. Hubbell, I. J. Cantrall, and S. K. Gangwere; 1 ♀. ADDITIONAL LITERATURE RECORDS: Watauga Co., N. C. and Rabun Co., Ga.

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[3] Paratypes of *thomasi* Hubbell.

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Another Mexican Ambrysus (Hemiptera: Naucoridae)

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Ambrysus rotundus species novum

General appearance: a rather large, robust and convex species with the mottled coloration so typical of ambrysi. Lighter anteriorly. Size 12.5–13.0 mm long and 8.0–9.0 mm wide. Color predominantly yellow over head and prothorax, mottled yellow and brown over remainder of dorsum. Venter yellow.

Head: shiny, weakly punctate, relatively flat. Vertex slightly but distinctly protuberant before the eyes, flat in front. Eyes flush with head surface; junction of outer and posterior eye margins weakly angulate. Labrum fairly sharply rounded in front; ratio of length-to-width 15::25 (60%). Head ratios are:

(1) total length to width (including eyes) 68::103 (66%)
(2) anterior distance between eyes to posterior distance between eyes 50::62 (81%)
(3) anterior distance between eyes to inner eye length 50::48 (96%)
(4) posterior distance between eyes to greatest length of head posterior to this line 62::16 (26%)